

WHAT IS CLAIMED IS:

1. A liquid crystal display device provided with a pixel area on a substrate having a plurality of gate lines, a plurality of drain lines, a plurality of thin film transistors and a plurality of pixel electrodes corresponding to said plurality of thin film transistors, and a drive circuit area disposed at a periphery of said substrate and having a drive circuit for driving said plurality of thin film transistors,

said plurality of thin film transistors comprising:

a polycrystalline silicon semiconductor layer formed on said substrate, a gate electrode formed on said polycrystalline silicon semiconductor layer with a gate insulating film interposed therebetween, an insulating film to cover said polycrystalline silicon semiconductor layer, said gate insulating film and said gate electrode, a drain electrode formed on said insulating film and electrically connected to said polycrystalline silicon semiconductor layer, and a source electrode formed on said insulating film, spaced from said drain electrode and electrically connected to said polycrystalline silicon semiconductor layer,

unevenness of a surface of said polycrystalline silicon semiconductor layer being within 10% of a thickness of said polycrystalline silicon semiconductor layer, and

variations of positions of peaks of depth distributions of concentration of impurities introduced into said polycrystalline silicon semiconductor layer to determine a conductivity type thereof being within 10% of said thickness of said

polycrystalline silicon semiconductor layer, said positions of said peaks being with respect to a surface of said substrate.

2. A liquid crystal display device according to claim 1, wherein said unevenness of said surface of said polycrystalline silicon semiconductor layer and said variations of positions of the peaks of depth distributions of concentration of the impurities are present under said gate insulting film.

3. A liquid crystal display device provided with a pixel area on a substrate having a plurality of gate lines, a plurality of drain lines, a plurality of thin film transistors and a plurality of pixel electrodes corresponding to said plurality of thin film transistors, and a drive circuit area disposed at a periphery of said substrate and having a drive circuit for driving said plurality of thin film transistors,

said plurality of thin film transistors comprising:

a polycrystalline silicon semiconductor layer formed on said substrate,

a gate electrode formed on said polycrystalline silicon semiconductor layer with a gate insulating film interposed therebetween,

an insulating film to cover said polycrystalline silicon semiconductor layer, said gate insulating film and said gate electrode,

a drain electrode formed on said insulating film and electrically connected to said polycrystalline silicon semiconductor layer, and

a source electrode formed on said insulating film, spaced from said drain electrode and electrically connected to said polycrystalline silicon semiconductor layer,

unevenness of a surface of said polycrystalline silicon semiconductor layer being within 10% of a thickness of said polycrystalline silicon semiconductor layer.

4. A liquid crystal display device according to claim 3, wherein said unevenness of said surface of said polycrystalline silicon semiconductor layer is present under said gate insulating film.

5. A liquid crystal display device provided with a pixel area on a substrate having a plurality of gate lines, a plurality of drain lines, a plurality of thin film transistors and a plurality of pixel electrodes corresponding to said plurality of thin film transistors, and a drive circuit area disposed at a periphery of said substrate and having a drive circuit for driving said plurality of thin film transistors,

said plurality of thin film transistors comprising:

a polycrystalline silicon semiconductor layer formed on said substrate,

a gate electrode formed on said polycrystalline silicon semiconductor layer with a gate insulating film interposed therebetween,

an insulating film to cover said polycrystalline silicon semiconductor layer, said gate insulating film and said gate electrode,

a drain electrode formed on said insulating film and electrically connected to said polycrystalline silicon semiconductor layer, and

a source electrode formed on said insulating film, spaced from said drain electrode and electrically connected to said polycrystalline silicon semiconductor layer,

variations of positions of peaks of depth distributions of concentration of impurities introduced into said polycrystalline silicon semiconductor layer to determine a conductivity type thereof being within 10% of said thickness of said polycrystalline silicon semiconductor layer, said positions of said peaks being with respect to a surface of said substrate.

6. A liquid crystal display device according to claim 5, wherein said variations of positions of the peaks of depth distributions of concentration of the impurities are present under said gate insulating film.